

IN THE CLAIMS:

1-21. Cancelled.

22. (New) A polythioether comprising:



wherein R^1 is a C_{1-10} alkyl, $-(R^3Q)_pR^3$ — or $C_{6-C_{20}}$ aryl where Q is O or S, each R^3 is independently C_{1-6} alkyl, and p is an integer between 0 and 6; R^2 is C_{1-6} alkyloxy or C_{5-12} cycloalkyloxy, R^4 is H, C_{1-6} alkyl alcohol and C_{0-6} alkyl substituted with — $[CH_2CH_2(R^2)_m]-X$, where X is a halogen, m is an integer between 1 and 4, and n is an integer selected to yield a molecular weight for said polythioether of between 1000 and 10,000 Daltons.

23. (New) The polythioether of claim 22 wherein R^1 is C_2-C_8 alkyl.

24. (New) The polythioether of claim 22 where R^1 is $-(R^3Q)_pR^3$ — where R^3 in each occurrence is C_{1-2} and p being 1 or 2.

25. (New) The polythioether of claim 22 wherein R^2 is C_1-C_2 alkyloxy.

26. (New) The polythioether of claim 22 wherein the molecular weight of said polythioether is between 2000 and 6000 Daltons.

27. (New) The polythioether of claim 22 wherein R^4 is hydrogen.

28. (New) The polythioether of claim 22 wherein R^4 is $-[CH_2CH_2(R^2)_m]-X$.

29. (New) The polythioether of claim 22 having an atomic percentage ratio C:S:O of 35-49:20-60:0-20.

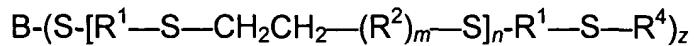
30. (New) The polythioether of claim 22 wherein R^4 is capped with an additional terminal functionality selected from the group consisting of: hydroxyl, olefin, epoxy, cyano, isocyno, silyl, siloxy, secondary amine and alkyl groups.

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31. (New) A mixture of polythioether polymers comprising:

a polythioether polymer having the formula



where B is a z-valent group of a polyfunctionalizing agent, z is an integer from 3 to 6, R¹ is a C₁₋₁₀ alkyl, -(R³Q)_pR³— or C₆-C₂₀ aryl where Q is O or S, each R³ is independently C₁₋₆ alkyl, and p is an integer between 0 and 6; R² is C₁₋₆ alkyloxy or C₅₋₁₂ cycloalkyloxy, R⁴ is H, C₁₋₆ alkyl, C₁₋₆ alkyl alcohol and C₀₋₆ alkyl substituted with —[CH₂CH₂(R²)_m—X, where X is a halogen, m is an integer between 1 and 4, and n is an integer selected to yield a molecular weight for said polythioether of between 1000 and 10,000 Daltons.

32. (New) The polythioether mixture of claim 31 wherein z is 3.

33. (New) The polythioether mixture of claim 31 wherein the mixture has an average functionality between 2 and 4.

34. (New) The polythioether mixture of claim 33 wherein the average functionality is between 2.05 and 3.00.

35. (New) A curable composition comprising:

42 to 80 weight percent of a polythioether polymer according to claim 22, 0.3 to 15 weight percent of a lightweight filler and 0.1 to 20 weight percent of a curing agent.

36. (New) The curable composition of claim 35 further comprising one or more additives selected from the group consisting of: pigments, cure accelerators, surfactants, adhesion promoters, thixotropic agents and solvents.

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37. (New) The curable composition of claim 36 wherein said lightweight filler comprises microspheres.

38. (New) The curable composition of claim 36 wherein said lightweight filler comprises an amorphous material.

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